

**IRIS enhancing the value of the building...**

- IRIS maximizing energy savings
- IRIS enabling environment protections
- IRIS pursuing space savings
- IRIS providing ride comfort
- IRIS ensuring safety & reliability

**PM Gearless Elevator**

**iris<sup>TM</sup>**





Truly your elevator partner



IRIS<sup>TM</sup>

IRIS is the rainbow goddess in Greek mythology

IRIS represents **High Quality, Excellent Aesthetic Design,**  
**Short Delivery** and **Best Service**

# Revolutionary PM Gearless Elevator



## Development Concept

Groundbreaking low & mid speed elevators substitute the Geared Machine with highly efficient Gearless Machine that adopts Permanent Magnet Synchronous Motor(PMSM) and exclusive PMSM controller



## Coverage

- Speed : 1.0 ~ 2.5m/s
- Duty : Up to 1,600kg
- Stops : Up to 32stops (1.0 ~ 1.75m/s)  
Up to 40stops (2.0 ~ 2.5m/s)



## Main Features

- Green Elevator
  - Energy Savings
  - Environment Protections
  - Space Savings
- Ride Comfort
- Safety and Reliability



# Green Elevator : IRIS

Sigma's goal of green product includes compliance with stringent environmental standards.

Accordingly, our approach to an environmentally acceptable product design requires careful consideration of the entire product life cycle from design to production, and has better solutions for people.



## Energy Savings

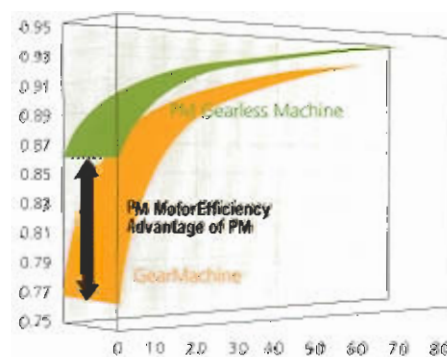
IRIS pursues cost savings of building power supply by reducing the capacity of electrical facility required for the operation of the elevator.

### High Motor Efficiency

By using permanent magnet (PM) gearless motor, IRIS improves motor efficiency.

### Lower Power Consumption

Compact motor design enables IRIS to lower initial electricity load and power consumption. It also allows IRIS to reduce heat from the motor.





## Environment Protections

### **No need for lubricant oil**

By using PM Gearless, IRIS is free from lubricate oil for the gear box. This enables us not only to reduce maintenance cost but also to keep machineroom cleaned.

### **EMC filters**

IRIS uses EMC filters which meet CISPR public 22 class. It minimizes interference from electrical and electronic equipment like home appliances in the building.

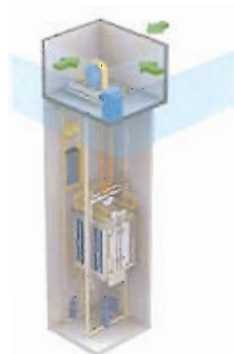
## Space Savings

### **Compact machine**

Customers may benefit 1/3 space from a smaller size.

### **Flexible space design and utilization**

IRIS enables architects to design building structure flexibly and use building space efficiently.







## Ride Comfort

### **Gearless system**

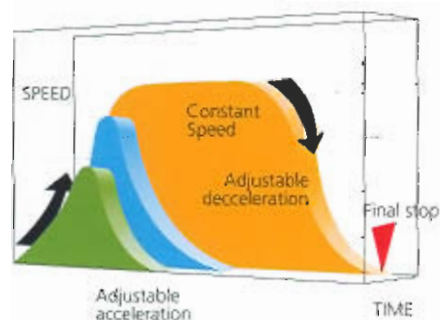
The absence of gearbox allows to eliminate noise from gear friction. Its coaxial transmission also reduces vibration and noise effectively.

### **Controller design for lower noise**

Low noise is possible by applying high frequency of 8kHz for synchronous motor controller.

### **Smooth Operation**

IRIS adopts VVVF(Variable Voltage Variable Frequency)control with 5th generation IPM and IGBT, and is designed for low vibration.



# PM Gearless Elevator : IRIS

SIGMA's cutting-edge gearless technology is favored to suit contemporary buildings.

IRIS enables the value of the building to increase with its new concepts.

## Safety and Reliability

### Flexible CPU

Totally digitally design applying 32bit DSP(Digital Signal Processor) or PM motor speed control.

### Easy Maintenance

Operation history log, mal-function analyzing system applied.

### Guaranteed Reliability

HALT(Highly Accelerated Life Test) on parts to decrease defects and increase life span of parts.

### Full power reserve of motor

A sufficient power reserve will ensure safer and more reliable operation of the elevator.

**EMI Test**  
(Electro Magnetic Interference)



**Vibration and Dropping Test**



**ESD Test**  
(Electro Static Discharge)



**Burst Test**



ISO 9001 ISO 14001

TÜV

BSI

CE



# COOL LINE



RearView

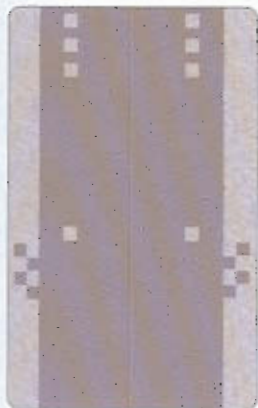


## Specification

Ceiling	<b>C-32A</b>
OPB	<b>CBM-10C</b>
Wall	<b>STS Hairline</b>
Door	<b>STS Hairline</b>
Handrail	<b>HR-04</b>
Floor	<b>Deco Tile</b>



# NATURAL LINE



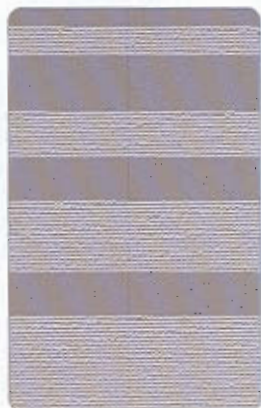
RearView



## Specification

Ceiling	C-HX2
OPB	CBM-10C
Wall	STS Hairline Etching (DSE-019W)
Door	STS Hairline Etching (DSE-019D)
Handrail	HR-04
Floor	Deco Tile

# MODERN LINE



RearView



## Specification

Ceiling	<b>C-HX3</b>
OPB	<b>CBM-31</b>
CPI	<b>CID-10</b>
Wall	<b>STS Hairline Etching (DSE-006W)</b>
Door	<b>STS Hairline Etching (DSE-006D)</b>
Handrail	<b>HR-04</b>
Floor	<b>Deco Tile</b>



# Entrance Design



## ■ Specification

Jamb • Narrow Jamb in Painted Steel Sheet (No. DSP-004W)

Door • Painted Steel Sheet (No. DSP-004W)

Sill • Extruded Hard Aluminum

Hall Indicator & Button • VID-M432

## ■ Specification

Jamb • Wide Jamb in STS Hairline

Door • STS Hairline

Sill • Extruded Hard Aluminum

Hall Indicator & Button • VID-M432



## ■ Specification

Jamb • Wide Tapered Jamb with Transom Panel in STS Hairline

Door • STS Hairline Etching (No. DSE-019D)

Sill • Extruded Hard Aluminum

Hall Indicator • HID-A122

Hall Button • HBM-S43

# Ceiling

Comfortable Design

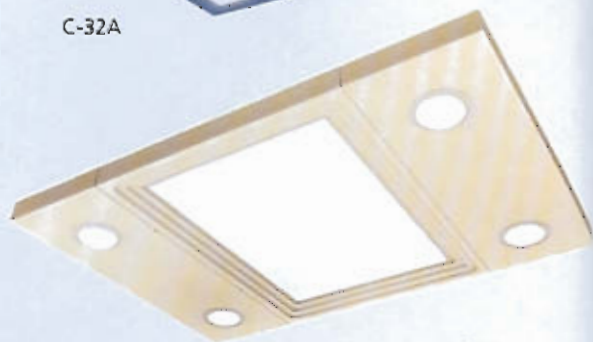
Eco Design

Universal Design

Luxury & Stylish Design



C-32A



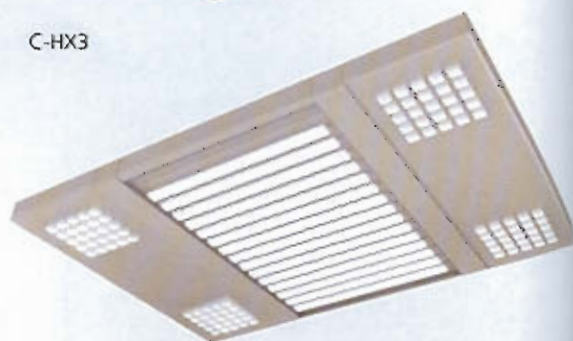
C-SL4



C-HX2



C-HX3



C-MX3



# Etching Pattern & Colors

## Etching Pattern



DSE-001D / DSE-001W



DSE-002D / DSE-002W



DSE-003D / DSE-003W



DSE-006D / DSE-006W



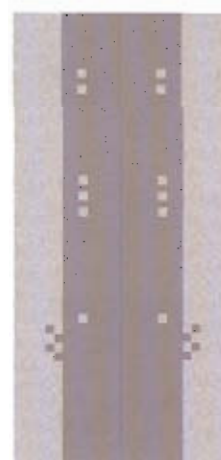
DSE-001D / DSE-001W



DSE-014D / DSE-014W



DSE-015D / DSE-015W



DSE-019D / DSE-019W

DSE-\*\*\*D Etching Pattern for Car / Landing door  
DSE-\*\*\*W Etching Pattern for Car Wall

## Painted Steel Sheet Color



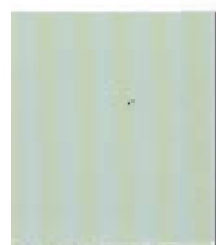
DSP-002W



DSP-004W



DSP-007W



DSP-016C



DSP-017C

Actual colors may be different from these prints.

# Fixtures

## Car Operating Panel

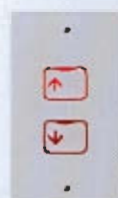


CBM-10C

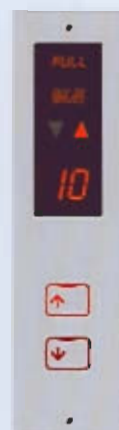


CBM-31

## Hall Button



HBM-S43



VID-M432



VID-M432T



HBM-S42



VID-M422



VID-M422T

## Handicapped COP



CBM-42SH



## Hall Position Indicator



HID-A122



HID-C132



HID-A132

## Car Position Indicator



CID-10



CID-12

## Handrail



HR-02



HR-04



HR-08

## Hall Lantern



HLV-C08

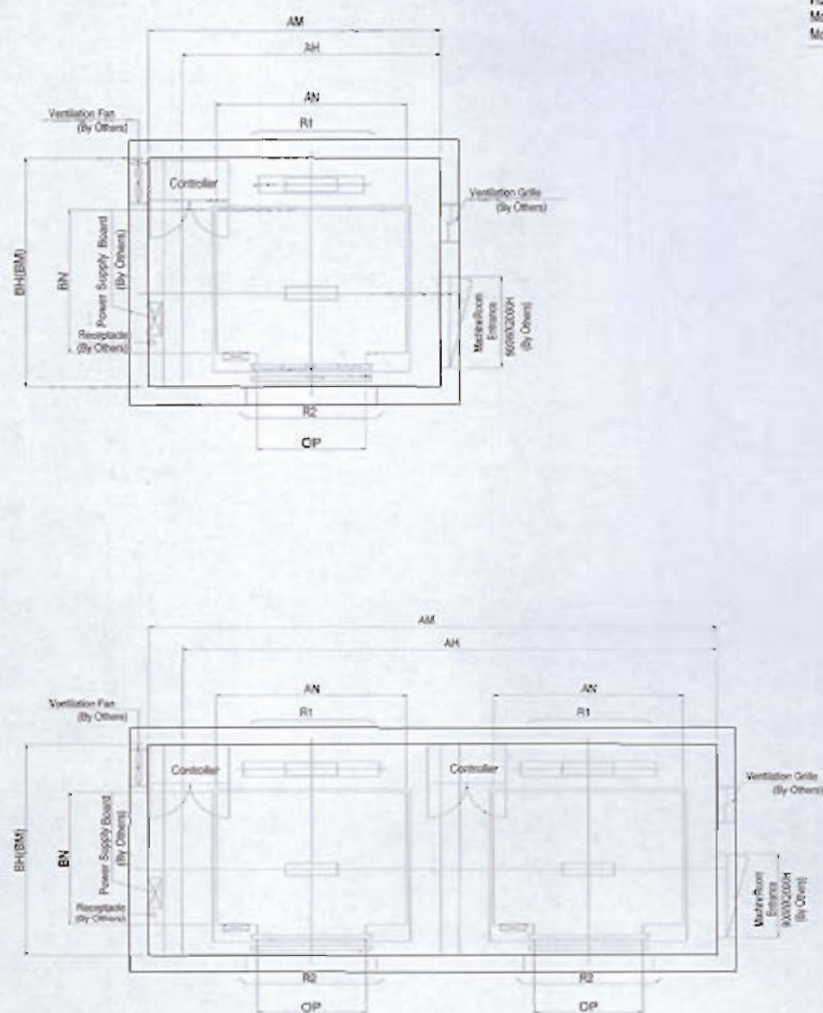
HLV-630

HLV-C10

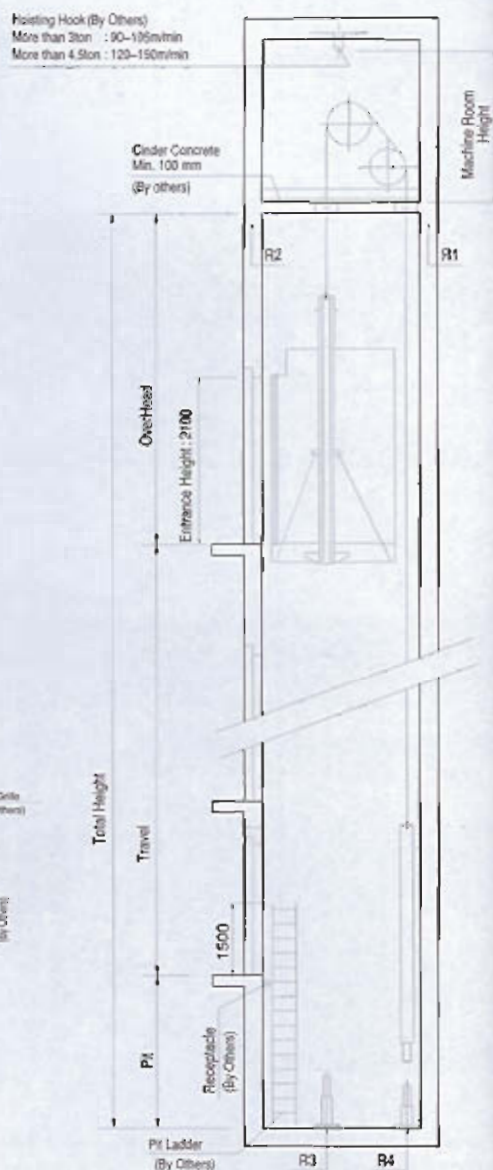
HLV-C11

# Technical Data

## Hoistway & Machine Room Plan



## Hoistway Section



## Overhead, Pit & Machine Room Height

Speed (m/min)	Load (kg)	Travel (m)	Overhead (mm)	Pit Depth (mm)	Machine Room Height (mm)	Hook Load (kg)
60	450 ~ 1000	TR ≤ 100	4200	1400	2300	3000
	1150 ~ 1600		4400	1400	2000	4500
90	450 ~ 1000	TR ≤ 100	4400	1450	2300	3000
	1150 ~ 1600			1500	2000	4500
105	450 ~ 1000	TR ≤ 100	4500	1600	2300	3000
	1150 ~ 1600			1650	2000	4500
120	750 ~ 1600	TR ≤ 130	5100	1900	2000	4500
150	750 ~ 1600		5300	2200	2000	4500



## Planning Guide for Dimensions (60m/min)

### Standard

Unit: mm

Capacity		Entrance Opening (min)	Car Inside Size	Car Outside Size	Hoistway Size		Machine Room Size		Machine Room Reaction Load(kg)		Pit Reaction Load(kg)	
Persons	Load(kg)		AN × BN	AS × BS	Simplex AH × BH	Duplex AH × BH	Simplex AM × BM	Duplex AM × BM	R1	R2	R3	R4
6	450	800	1400×850	1450×1015	1850×1500	3900×1500	1850×1500	3900×1500	3600	2000	4920	3930
8	550	800	1400×1030	1450×1195	1850×1700	3900×1700	1850×1700	3900×1700	4200	2800	7060	5850
9	600	800	1400×1100	1450×1265	1850×1750	3900×1750	1850×1750	3900×1750	4500	3100	7340	6020
10	680	800	1400×1250	1450×1415	1850×1900	3900×1900	1850×1900	3900×1900	4900	3400	7860	6370
11	750	800	1400×1350	1450×1515	1850×2000	3900×2000	1850×2000	3900×2000	5250	3700	8690	6930
13	900	900	1600×1350	1650×1515	2050×2000	4300×2000	2050×2000	4300×2000	5750	4100	9430	7450
15	1000	900	1600×1500	1650×1665	2050×2150	4300×2150	2050×2150	4300×2150	6150	4600	10210	8010
17	1150	1000	1800×1500	1890×1685	2400×2250	5000×2250	2400×2250	5000×2250	12300	8250	17550	13300
		1100	2000×1350	2090×1535	2600×2100	5400×2100	2600×2100	5400×2100				
20	1350	1000	1800×1700	1890×1885	2400×2450	5000×2450	2400×2450	5000×2450	13100	8850	18050	13550
		1100	2000×1500	2090×1685	2600×2250	5400×2250	2600×2250	5400×2250				
24	1600	1100	2000×1750	2090×1935	2600×2500	5400×2500	2600×2500	5400×2500	13900	9350	19550	14350
			2150×1600	2240×1785	2750×2350	5700×2350	2750×2350	5700×2350				

### EN Code

6	450	800	1400×850	1450×1015	1850×1500	3900×1500	1850×1500	3900×1500	3600	2000	4920	3930
7	525	800	1400×1030	1450×1195	1850×1700	3900×1700	1850×1700	3900×1700	4200	2800	7060	5850
8	600	800	1400×1100	1450×1265	1850×1750	3900×1750	1850×1750	3900×1750	4500	3100	7340	6020
9	675	800	1400×1250	1450×1415	1850×1900	3900×1900	1850×1900	3900×1900	4900	3400	7860	6370
10	800	800	1400×1350	1450×1515	1850×2000	3900×2000	1850×2000	3900×2000	5250	3700	8690	6930
12	900	900	1600×1350	1650×1515	2050×2000	4300×2000	2050×2000	4300×2000	5750	4100	9430	7450
13	1000	900	1600×1500	1650×1665	2050×2150	4300×2150	2050×2150	4300×2150	6150	4600	10210	8010
16	1200	1000	1800×1500	1890×1685	2400×2250	5000×2250	2400×2250	5000×2250	12300	8250	17550	13300
		1100	2000×1350	2090×1535	2600×2100	5400×2100	2600×2100	5400×2100				
18	1350	1000	1800×1700	1890×1885	2400×2450	5000×2450	2400×2450	5000×2450	13100	8850	18050	13550
		1100	2000×1500	2090×1685	2600×2250	5400×2250	2600×2250	5400×2250				
21	1600	1100	2000×1750	2090×1935	2600×2500	5400×2500	2600×2500	5400×2500	13900	9350	19550	14350
			2150×1600	2240×1785	2750×2350	5700×2350	2750×2350	5700×2350				

### Malaysia Code

6	450	800	1400×850	1450×1015	1850×1500	3900×1500	1850×1500	3900×1500	3600	2000	4920	3930
8	545	800	1400×1030	1450×1195	1850×1700	3900×1700	1850×1700	3900×1700	4200	2800	7060	5850
9	615	800	1400×1100	1450×1265	1850×1750	3900×1750	1850×1750	3900×1750	4500	3100	7340	6020
10	680	800	1400×1250	1450×1415	1850×1900	3900×1900	1850×1900	3900×1900	4900	3400	7860	6370
11	750	800	1400×1350	1450×1515	1850×2000	3900×2000	1850×2000	3900×2000	5250	3700	8690	6930
13	885	900	1600×1350	1650×1515	2050×2000	4300×2000	2050×2000	4300×2000	5750	4100	9430	7450
15	1025	900	1600×1500	1650×1665	2050×2150	4300×2150	2050×2150	4300×2150	6150	4600	10210	8010
17	1160	1000	1800×1500	1890×1685	2400×2250	5000×2250	2400×2250	5000×2250	12300	8250	17550	13300
		1100	2000×1350	2090×1535	2600×2100	5400×2100	2600×2100	5400×2100				
20	1365	1000	1800×1700	1890×1885	2400×2450	5000×2450	2400×2450	5000×2450	13100	8850	18050	13550
		1100	2000×1500	2090×1685	2600×2250	5400×2250	2600×2250	5400×2250				
23	1565	1100	2000×1750	2090×1935	2600×2500	5400×2500	2600×2500	5400×2500	13900	9350	19550	14350
			2150×1600	2240×1785	2750×2350	5700×2350	2750×2350	5700×2350				



# Technical Data

## Planning Guide for Dimensions (90, 105m/min)

### Standard

Capacity		Entrance Opening (min)	Car Inside Size	Car Outside Size	Hoistway Size		Machine Room Size		Machine Room Reaction Load(kg)		Fit Reaction Load(kg)	
					Simplex	Duplex	Simplex	Duplex	R1	R2	R3	R4
Persons	Load(kg)		AN × BN	AS × BS	AH × BH	AH × BH	AM × BM	AM × BM				
8	550	800	1400 × 1030	1450 × 1195	1850 × 1700	3900 × 1700	1850 × 1700	3900 × 1700	4200	2800	7060	5850
9	600	800	1400 × 1100	1450 × 1265	1850 × 1750	3900 × 1750	1850 × 1750	3900 × 1750	4500	3100	7340	6020
10	680	800	1400 × 1250	1450 × 1415	1850 × 1900	3900 × 1900	1850 × 1900	3900 × 1900	4900	3400	7860	6370
11	750	800	1400 × 1350	1450 × 1515	1850 × 2000	3900 × 2000	1850 × 2000	3900 × 2000	5250	3700	8690	6930
13	900	900	1600 × 1350	1650 × 1515	2050 × 2000	4300 × 2000	2050 × 2000	4300 × 2000	5750	4100	9430	7450
15	1000	900	1600 × 1500	1650 × 1665	2050 × 2150	4300 × 2150	2050 × 2150	4300 × 2150	6150	4600	10210	8010
17	1150	1000	1800 × 1500	1890 × 1685	2400 × 2250	5000 × 2250	2400 × 2250	5000 × 2250	12300	8250	17550	13300
		1100	2000 × 1350	2090 × 1535	2600 × 2100	5400 × 2100	2600 × 2100	5400 × 2100				
20	1350	1000	1800 × 1700	1890 × 1885	2400 × 2450	5000 × 2450	2400 × 2450	5000 × 2450	13100	8850	18050	13550
		1100	2000 × 1500	2090 × 1685	2600 × 2250	5400 × 2250	2600 × 2250	5400 × 2250				
24	1600	1100	2000 × 1750	2090 × 1935	2600 × 2500	5400 × 2500	2600 × 2500	5400 × 2500	13900	9350	19550	14350
			2150 × 1600	2240 × 1785	2750 × 2350	5700 × 2350	2750 × 2350	5700 × 2350				

### EN Code

7	525	800	1400 × 1030	1450 × 1195	1850 × 1700	3900 × 1700	1850 × 1700	3900 × 1700	4200	2800	7060	5850
8	600	800	1400 × 1100	1450 × 1265	1850 × 1750	3900 × 1750	1850 × 1750	3900 × 1750	4500	3100	7340	6020
9	675	800	1400 × 1250	1450 × 1415	1850 × 1900	3900 × 1900	1850 × 1900	3900 × 1900	4900	3400	7860	6370
10	800	800	1400 × 1350	1450 × 1515	1850 × 2000	3900 × 2000	1850 × 2000	3900 × 2000	5250	3700	8690	6930
12	900	900	1600 × 1350	1650 × 1515	2050 × 2000	4300 × 2000	2050 × 2000	4300 × 2000	5750	4100	9430	7450
13	1000	900	1600 × 1500	1650 × 1665	2050 × 2150	4300 × 2150	2050 × 2150	4300 × 2150	6150	4600	10210	8010
16	1200	1000	1800 × 1500	1890 × 1685	2400 × 2250	5000 × 2250	2400 × 2250	5000 × 2250	12300	8250	17550	13300
		1100	2000 × 1350	2090 × 1535	2600 × 2100	5400 × 2100	2600 × 2100	5400 × 2100				
18	1350	1000	1800 × 1700	1890 × 1885	2400 × 2450	5000 × 2450	2400 × 2450	5000 × 2450	13100	8850	18050	13550
		1100	2000 × 1500	2090 × 1685	2600 × 2250	5400 × 2250	2600 × 2250	5400 × 2250				
21	1600	1100	2000 × 1750	2090 × 1935	2600 × 2500	5400 × 2500	2600 × 2500	5400 × 2500	13900	9350	19550	14350
			2150 × 1600	2240 × 1785	2750 × 2350	5700 × 2350	2750 × 2350	5700 × 2350				

### Malaysia Code

8	545	800	1400 × 1030	1450 × 1195	1850 × 1700	3900 × 1700	1850 × 1700	3900 × 1700	4200	2800	7060	5850
9	615	800	1400 × 1100	1450 × 1265	1850 × 1750	3900 × 1750	1850 × 1750	3900 × 1750	4500	3100	7340	6020
10	680	800	1400 × 1250	1450 × 1415	1850 × 1900	3900 × 1900	1850 × 1900	3900 × 1900	4900	3400	7860	6370
11	750	800	1400 × 1350	1450 × 1515	1850 × 2000	3900 × 2000	1850 × 2000	3900 × 2000	5250	3700	8690	6930
13	885	900	1600 × 1350	1650 × 1515	2050 × 2000	4300 × 2000	2050 × 2000	4300 × 2000	5750	4100	9430	7450
15	1025	900	1600 × 1500	1650 × 1665	2050 × 2150	4300 × 2150	2050 × 2150	4300 × 2150	6150	4600	10210	8010
17	1160	1000	1800 × 1500	1890 × 1685	2400 × 2250	5000 × 2250	2400 × 2250	5000 × 2250	12300	8250	17550	13300
		1100	2000 × 1350	2090 × 1535	2600 × 2100	5400 × 2100	2600 × 2100	5400 × 2100				
20	1365	1000	1800 × 1700	1890 × 1885	2400 × 2450	5000 × 2450	2400 × 2450	5000 × 2450	13100	8850	18050	13550
		1100	2000 × 1500	2090 × 1685	2600 × 2250	5400 × 2250	2600 × 2250	5400 × 2250				
23	1565	1100	2000 × 1750	2090 × 1935	2600 × 2500	5400 × 2500	2600 × 2500	5400 × 2500	13900	9350	19550	14350
			2150 × 1600	2240 × 1785	2750 × 2350	5700 × 2350	2750 × 2350	5700 × 2350				



## Planning Guide for Dimensions(120, 150m/min)

### Standard

Unit : mm

Capacity		Entrance Opening (mm)	Car Inside Size	Car Outside Size	Hoistway Size		Machine Room Size		Machine Room Reaction Load(kg)		Pit Reaction Load(kg)	
Persons	Load(kg)				Simplex	Duplex	Simplex	Duplex	R1	R2	R3	R4
11	750	800	1400×1350	1490×1535	2000×2100	4200×2100	2000×2100	4200×2100	11000	7550	10000	8300
13	900	900	1600×1350	1690×1535	2200×2100	4600×2100	2200×2100	4600×2100	11000	7550	13250	10100
15	1000	900	1600×1500	1690×1685	2200×2250	4600×2250	2200×2250	4600×2250	11650	7850	13950	10550
17	1150	1000	1800×1500	1890×1685	2400×2250	5000×2250	2400×2250	5000×2250	12300	8250	17550	13300
		1100	2000×1350	2090×1535	2600×2100	5400×2100	2600×2100	5400×2100				
20	1350	1000	1800×1700	1890×1885	2400×2450	5000×2450	2400×2450	5000×2450	13100	8850	18050	13550
		1100	2000×1500	2090×1685	2600×2250	5400×2250	2600×2250	5400×2250				
24	1600	1100	2000×1750	2090×1935	2600×2500	5400×2500	2600×2500	5400×2500	13900	9350	19550	14350
			2150×1600	2240×1785	2750×2350	5700×2350	2750×2350	5700×2350				

### EN Code

10	800	800	1400×1350	1490×1535	2000×2100	4200×2100	2000×2100	4200×2100	11000	7550	10000	8300
12	900	900	1600×1350	1690×1535	2200×2100	4600×2100	2200×2100	4600×2100	11000	7550	13250	10100
13	1000	900	1600×1500	1690×1685	2200×2250	4600×2250	2200×2250	4600×2250	11650	7850	13950	10550
16	1200	1000	1800×1500	1890×1685	2400×2250	5000×2250	2400×2250	5000×2250	12300	8250	17550	13300
		1100	2000×1350	2090×1535	2600×2100	5400×2100	2600×2100	5400×2100				
18	1350	1000	1800×1700	1890×1885	2400×2450	5000×2450	2400×2450	5000×2450	13100	8850	18050	13550
		1100	2000×1500	2090×1685	2600×2250	5400×2250	2600×2250	5400×2250				
21	1600	1100	2000×1750	2090×1935	2600×2500	5400×2500	2600×2500	5400×2500	13900	9350	19550	14350
			2150×1600	2240×1785	2750×2350	5700×2350	2750×2350	5700×2350				

### Malaysia Code

11	750	800	1400×1350	1490×1535	2000×2100	4200×2100	2000×2100	4200×2100	11000	7550	10000	8300
13	885	900	1600×1350	1690×1535	2200×2100	4600×2100	2200×2100	4600×2100	11000	7550	13250	10100
15	1025	900	1600×1500	1690×1685	2200×2250	4600×2250	2200×2250	4600×2250	11650	7850	13950	10550
17	1160	1000	1800×1500	1890×1685	2400×2250	5000×2250	2400×2250	5000×2250	12300	8250	17550	13300
		1100	2000×1350	2090×1535	2600×2100	5400×2100	2600×2100	5400×2100				
20	1365	1000	1800×1700	1890×1885	2400×2450	5000×2450	2400×2450	5000×2450	13100	8850	18050	13550
		1100	2000×1500	2090×1685	2600×2250	5400×2250	2600×2250	5400×2250				
23	1565	1100	2000×1750	2090×1935	2600×2500	5400×2500	2600×2500	5400×2500	13900	9350	19550	14350
			2150×1600	2240×1785	2750×2350	5700×2350	2750×2350	5700×2350				



# Technical Data

## Power Supply Plan

### Speed 60, 90, 105m/min

220V  
400V

Speed (m/min)	Capacity		Motor Capacity(kW)	MCCB Capacity(A)			Transformer Capa.(kVA)		Lead-in Wire Size(mm <sup>2</sup> )		Earth Wire Size(mm <sup>2</sup> )	Heat Output (kcal / H)	Starting Power(kVA/set)			
	Persons	Load(kg)		Simplex	Duplex	Simplex	Duplex	Simplex	Duplex							
60	6	450	5.5	35	16	60	32	6.0	11.9	8.0	4.0	16.0	6.0	6	645	7.3
	8	550	5.5	35	16	50	32	6.0	11.9	8.0	4.0	16.0	6.0	6	785	7.3
	9	600	5.5	35	16	60	32	6.2	12.5	8.0	4.0	16.0	6.0	6	860	7.7
	10	680	5.5	40	20	80	40	6.9	13.8	8.0	4.0	16.0	6.0	6	975	8.7
	11	750	5.5	50	25	100	50	7.8	15.6	8.0	4.0	16.0	6.0	6	1145	10.0
	13	900	6.7	50	25	100	50	8.4	16.8	8.0	4.0	16.0	6.0	6	1285	10.9
	15	1000	6.7	50	25	100	50	9.1	18.1	8.0	4.0	22.0	8.0	6	1430	11.9
	17	1150	11.1	60	32	125	63	10.9	21.9	16.0	6.0	22.0	8.0	6	1645	14.7
	20	1350	11.1	80	40	125	63	12.3	24.7	16.0	6.0	38.0	16.0	6	1930	16.8
	24	1600	11.1	80	40	150	80	14.1	28.2	16.0	6.0	38.0	16.0	6	2285	19.5
90	8	550	8.8	50	25	100	50	8.1	16.2	8.0	4.0	22.0	8.0	6	1180	10.5
	9	600	8.8	50	25	100	50	8.6	17.2	8.0	4.0	22.0	8.0	6	1285	11.2
	10	680	8.8	60	32	125	63	9.5	19.0	8.0	4.0	22.0	8.0	6	1460	12.6
	11	750	8.8	60	32	125	63	10.8	21.5	16.0	6.0	22.0	8.0	6	1715	14.5
	13	900	10.7	60	32	125	63	11.6	23.1	16.0	6.0	22.0	8.0	6	1930	15.7
	15	1000	10.7	80	40	150	80	12.6	25.1	16.0	6.0	38.0	16.0	6	2145	17.2
	17	1150	17.7	100	50	200	100	15.1	30.2	22.0	8.0	38.0	16.0	6	2465	21.0
	20	1350	17.7	100	50	200	100	17.2	34.3	22.0	8.0	38.0	16.0	6	2895	24.0
105	8	550	9.7/9.9	80	32	125	63	9.9	19.8	16.0	6.0	22.0	8.0	6	1375	13.2
	9	600	9.7/9.9	80	32	125	63	10.5	21.0	16.0	6.0	38.0	16.0	6	1500	14.1
	10	680	9.7/9.9	80	32	125	63	11.5	23.0	16.0	6.0	38.0	16.0	6	1700	15.6
	11	750	9.7/9.9	100	40	150	80	13.1	26.2	16.0	6.0	38.0	16.0	6	2000	18.0
	13	900	11.7	100	40	150	80	14.1	28.2	16.0	6.0	38.0	16.0	6	2250	19.5
	15	1000	11.7	100	50	200	100	15.3	30.6	22.0	8.0	38.0	16.0	6	2500	21.3
	17	1150	19.4	100	50	200	100	17.3	34.5	22.0	8.0	38.0	16.0	6	2875	24.2
	20	1350	19.4	125	63	225	125	19.7	39.3	22.0	8.0	50.0	25.0	6	3375	27.8
	24	1600	19.4	125	63	250	140	22.6	45.3	38.0	16.0	50.0	25.0	6	4000	32.3

### Speed 120, 150 m/min

220V  
400V

Speed (m/min)	Capacity		Motor Capacity (kW)	MCCB Capacity of Building(A)								Power Supply Capacity(kVA)								Lead-in Wire Size(mm)				Earth Wire Size (mm <sup>2</sup> )	Heat Output (kcal / H)	Starting Power (kVA/set)
	Persons	Load(kg)		Simplex	Duplex	Triplex	Fourplex	Simplex	Duplex	Triplex	Fourplex	Simplex	Duplex	Triplex	Fourplex	Simplex	Duplex	Triplex	Fourplex	Simplex	Duplex	Triplex	Fourplex			
120	11	750	11	60	40	125	75	200	100	250	125	13	25	34	39	38	8	60	14	100	22	150	22	8	2285	25
	13	900	13.5	60	40	125	100	200	125	250	125	14	27	38	43	38	8	60	14	100	22	200	30	8	2570	27
	15	1000	13.5	75	50	150	100	200	125	300	150	16	31	42	48	38	8	60	14	150	30	200	30	8	2860	29
	17	1150	16	100	50	175	100	250	150	350	175	18	36	48	55	38	8	100	22	150	30	200	38	8	3300	32
	20	1350	18.5	100	60	200	125	300	175	400	200	21	42	57	65	38	8	125	30	200	38	250	50	8	3860	36
	24	1600	22	125	75	225	150	350	200	500	225	25	50	67	77	50	14	150	38	200	50	250	80	14	4575	41
150	11	750	13.5	75	50	150	100	225	125	300	150	16	31	42	48	38	8	60	14	150	30	200	30	8	2860	32
	13	900	17	175	50	150	100	225	150	300	150	18	35	47	54	38	8	100	22	150	30	200	38	8	3215	35
	15	1000	17	100	60	175	125	250	150	350	175	20	39	52	60	38	8	100	22	200	38	250	50	8	3575	38
	17	1150	20	125	75	200	125	300	175	400	200	23	45	60	69	50	14	125	30	200	50	250	60	14	4110	42
	20	1350	23	125	75	225	150	350	200	550	225	26	52	71	81	50	14	150	38	250	60	325	80	14	4825	47
	24	1600	27.5	150	100	300	175	400	250	600	300	31	62	84	96	38	14	150	38	250	60	325	80	14	5715	54



# Technical Features

## Operation Functions

● Standard ○ Option

FEATURES	DESCRIPTION	
<b>Attendant Operation</b>	The operating mode of an elevator can be changed from the normal automatic operation to the attendant service by an attendant switch.	●
<b>Independent Operation</b>	Key switch in the car operating panel will cancel any existing car calls and hold the door open at the landing position. During independent operation, the car will respond only to car calls.	●
<b>Back-up operation</b>	When Electrical transmission device between hall call and control panel comes into the abnormal condition and it lasts during some period, elevator control device is converted to Back-up operation automatically. Then, the elevator moves in sequence up and down repeatedly from top to bottom floor to service every other floor which is in normal condition.	●
<b>Safe Drive Operation</b>	When a car stops between floors due to mechanical malfunction, it will descend to the nearest floor at a low speed and hold the doors open after checking all safety measures.	●
<b>Car Call Cancellation</b>	Allows cancellation of an incorrectly registered car call. If you push a wrong floor button in the car, you can cancel it by pressing that floor button one more time.	●
<b>Automatic Turn-Off of Car Light &amp; Fan</b>	Car illumination and fan are turned off automatically in case there is no hall call or car call, this saves energy.	●
<b>Automatic Bypass</b>	A fully-loaded car ( More than 80% of rated load) bypasses hall calls in order to maintain maximum operational efficiency.	●
<b>Overload Holding Stop (110% of rated load)</b>	When the number of passengers exceeds the normal capacity, a buzzer sounds and the elevator remains stopped at that floor. When the excessive number of passengers disembark, the buzzer stops, the elevator doors close, and operation continues.	●
<b>Detection of Jammed Hall Button</b>	If a hall button is jammed mechanically, the hall call will be automatically bypassed after being served once, until the program is resolved.	●
<b>Car Door Safety Edge</b>	Extending the full height of the car door, this device causes the doors to return to the fully open position, should the door encounter a person or obstacle while closing.	●
<b>Micro Levelling</b>	An automatic two way levelling device is provided to maintain the elevator car level with the landing, regardless of elevator load or direction of travel.	●
<b>N-Plex Operation</b>	It can control up to 4 sets of elevators to optimize allocation of hall calls.	○
<b>Non-Stop Operation</b>	Specific floors which are memorized in control panel can be set to disable using switch on car operating panel or in security room.	○
<b>Parking Operation</b>	The elevator can be automatically parked at the predetermined floor with its door closed, as well as turn off the lights and ventilation.	○
<b>VIP Operation</b>	The specified elevator is controlled by the special call buttons provided only for VIP elevator	○
<b>Emergency Power Operation</b>	If normal building power supply fails and the building provides emergency power to the controller(s), one elevator at a time will proceed to the lowest landing where it will stop with doors open and with all of its power and operating circuit in an inoperative standby condition.	○
<b>Fire return operation</b>	In case of fire, every car should be returned to the specified floor in order to evacuate passengers to safety.	○
<b>Firemen Operation</b>	In case of fire, a firemen can use the elevator which is stopped at the specified floor in order to support firemen for fire-fighting.	○
<b>Anti-nuisance Operation</b>	In case of substantial difference between the number of calls registered on the car operating panel and actual load in the elevator, the elevator prevents unnecessary operation by cancelling all registered calls when it arrives at the nearest floor.	○
<b>Door Nudging</b>	When the doors remain open for more than the fixed door open time, this feature closes the doors at reduced closing speed with the buzzer sounding.	○
<b>Voice Synthesizer</b>	This system provides riding passengers with audio information about car operation such as direction of travel, landing floor, etc.	○
<b>Door Photo Sensor</b>	The doors reverse to fully open position if the light ray unit detects an obstacle when the doors are closing.	○



# Technical Data

## Work by Others

The works below are not included in the elevator installation work and should be carried out by building contractors in accordance with our drawings, relevant international or local codes and regulations.

### Hoistway

- A properly framed and enclosed hoistway, including any venting as required by the governing code or authority.
- A dry pit constructed to the elevator manufacturer's specifications to reinforce or sustain any vertical forces on the guide rails and impacted loads from the car and counterweight buffers.
- A metal sill angle or concrete haunch across the full width of the hoistway at each elevator landing.
- Provision of steel bars to fix jamb around the entrance of each floor.
- All cutting, including cutouts to accommodate hall signal fixtures, patching, painting of walls, floors, or partitions, together with finish painting of entrance doors and frames, if required.
- Provision of entrance or ladder for pit access
- Supply and installation of fascia plate.
- Installation of emergency exits and electric wiring in blind sections of hoistway where required.
- The tolerance of perpendicular line over the whole hoistway height must not exceed  $\pm 30\text{mm}$ .
- A waterproof outlet and light fixture in the elevator pit area with the light switch being located adjacent to the access door or ladder.
- Suitable light fixture and convenience outlet in the pit with a light switch adjacent to the access door or ladder. The receptacles shall have protection for ground fault circuit interrupter.

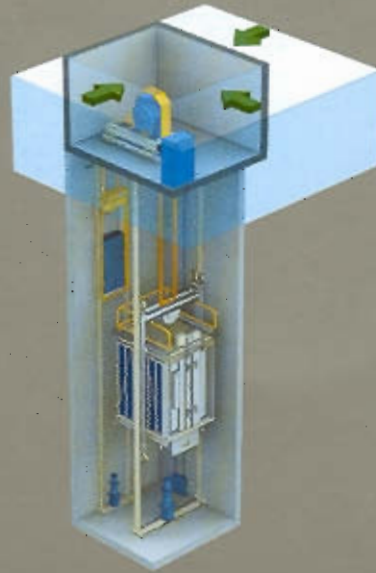
### Machine Room

- Provision of wiring between controller and building management system.
- A construction hoisting beam or hook, if required, with the correct location and size as determined by the elevator contractor for each hoistway.
- Noise insulation should be installed between machine room and adjacent residential area.
- A suitable machine room with legal access, ventilation and concrete floor.  
The temperature in the machine room should be maintained between 5°C and 40°C.  
Relative humidity should not exceed 90%(monthly) and 95%(daily) non-condensing.  
Ventilation fan or Air conditioner should be provided as per heat dissipation by the elevator contractor.
- The size of entrance shall be Min.1000mm(W) x 2000mm(H).
- Installation of lead-in wire and earth wire between building main power board and machine room incoming distribution board. However, machine room lighting source supply shall be installed separately.
- Provision of suitable light fixture and convenience outlets in the machine room

### Miscellaneous

- Wiring and piping between monitoring system.
- Machine room and hoistway shall be free of dust or harmful gas.
- All electric power for lighting, tools, welding, etc during installation.
- All single phase receptacles installed in machine rooms, pits, and machinery spaces shall have ground fault circuit interrupter protection.
- Fire detector for fire emergency operation.
- A secured area for storage of elevator equipment and materials during installation.





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